

Geogebra Exploration of Midsegments of a Triangle

Open Geogebra.

Sec 5-4

Create a large scalene triangle labeled, ABC at the vertices (5th tool from left).

Find the “distance or length” of each side of the triangle. (4th tool from the right)

Find the slope of each side of the triangle. (4th tool from the right)

Locate the midpoints of each side of the triangle using the midpoint tool (2nd from the left.) labeling them D, E, and F.

Connect two of the midpoints, D and E with a line segment. (3rd tool from the left.) This is called a midsegment of the triangle, ABC.

Now measure the length of this midsegment. (4th tool from the right, “distance or length”)

Find the slope of the midsegment. (4th tool from right)

Compare the midsegment’s length to the opposite side of the triangle’s length. What do you notice?

Compare the slope of the midsegment to the slope of the side opposite the midsegment. What do you notice?

Connect the remaining 2 midsegments. Compare their lengths to their opposite triangle’s side length. Does your conjecture hold?

State your conjecture about the **midsegments** of triangles:

The segment connecting the midpoints of two sides of a triangle is _____ to the third side and is _____ as long.

Extension: Find the perimeter of triangle ABC. Find the perimeter of triangle DEF. Compare the two.

Draw in the midsegments for triangle DEF, labeling them GHI. Find the perimeter of this triangle, GHI. Compare to the perimeter of triangle ABC.

Geogebra Exploration of sides and angles of triangles

Sec 5.5

File new, construct any scalene triangle, labeled ABC.

Find the length of each side of the triangle.(4th tool from right)

Find the measure of each angle. (4th tool from right)

In your triangle, is the longest side *adjacent to* or *opposite* the largest angle? Check your neighbor's triangle.

In your triangle, is the shortest side *adjacent to* or *opposite* the smallest angle?

Drag point A to change the shape and size of triangle ABC.

Answer the questions above for the new triangle.

Make a conjecture about how the positions of sides of different lengths in a triangle are related to the positions of the angles of different measures.

The longest side is _____ the largest angle and the shortest side is _____ the smallest angle.